

**From:** [Spanos, Stergios](#)  
**To:** [Houlihan, Damien](#); [Franz, Hayley](#); [Gaito, Danielle](#)  
**Cc:** [David Neils](#); [teresa.ptak@des.nh.gov](mailto:teresa.ptak@des.nh.gov)  
**Subject:** RE: Powder Mill Hatchery Update  
**Date:** Tuesday, August 20, 2019 11:55:53 AM

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I think they would respond promptly with any request you had for updating their flow diagrams and application. They've been quite proud of their efforts and would likely also welcome a site visit any time you want. In the meantime, we will send you any site visit summary and pictures when we go.  
~Sterg

Stergios Spanos, PE, Civil Engineer VI  
Permits and Compliance Section, Wastewater Engineering Bureau, Water Division, NHDES  
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**From:** Houlihan, Damien <houlihan.damien@epa.gov>  
**Sent:** Tuesday, August 20, 2019 9:47 AM  
**To:** Franz, Hayley <Hayley.Franz@des.nh.gov>; Gaito, Danielle <Gaito.Danielle@epa.gov>  
**Cc:** Spanos, Stergios <Stergios.Spanos@des.nh.gov>; Neils, David <David.Neils@des.nh.gov>; Ptak, Teresa <Teresa.Ptak@des.nh.gov>  
**Subject:** RE: Powder Mill Hatchery Update

**EXTERNAL:** Do not open attachments or click on links unless you recognize and trust the sender.

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Thanks for the update, Hayley. A lot going on, most of which looks positive.

I'm wondering if the hatchery should update it's application since they are making so many changes and we'll need the most up-to-date info (water line diagrams, treatment systems, pounds of fish raised, BMPs, etc) to write the permit.

Let me know what you and Sterg think, and then we can reach out to the hatchery if necessary.  
Thanks.

Damien

*Damien Houlihan, Chief  
Industrial Permits Section  
US EPA*

617 918-1586

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**From:** Franz, Hayley <[Hayley.Franz@des.nh.gov](mailto:Hayley.Franz@des.nh.gov)>  
**Sent:** Monday, August 19, 2019 9:38 AM

**To:** Gaito, Danielle <[Gaito.Danielle@epa.gov](mailto:Gaito.Danielle@epa.gov)>

**Cc:** Houlihan, Damien <[houlihan.damien@epa.gov](mailto:houlihan.damien@epa.gov)>; [stergios.spanos@des.nh.gov](mailto:stergios.spanos@des.nh.gov); David Neils <[david.neils@des.nh.gov](mailto:david.neils@des.nh.gov)>; [teresa.ptak@des.nh.gov](mailto:teresa.ptak@des.nh.gov)

**Subject:** RE: Powder Mill Hatchery Update

Hi Danielle,

Sterg and I took another ride up to Powder Mill on Friday and I wanted to provide another update on the progress that has been made on the solids management at Powder Mill. The system has been operating for a couple of weeks.

- The sludge has been removed from the bass ponds, and hauled offsite to the Town's sand pit
  - 7 truck loads were removed from Bass Pond #2 (see photo #1)
  - 3 truck loads have been removed from Bass Pond #3, and they anticipate removing 4-6 more (see photo #2)
- The new settling tanks are currently operating and vacuumed waste is now trucked to these instead of the bass ponds. They move up to 20 trucks of vacuumed waste from the raceways to the circular tanks in a day, and usually do that once a week. All 3 tanks are shown in photo #3.
- Each of the tanks has an approximate volume of 810 ft<sup>3</sup>
- Circular tanks 1&3
  - The waste from the raceways is pumped into tanks 1&3 via the green hose shown in photo #4
  - These tanks contain duckweed for nutrient uptake
  - Fresh water is added to the tanks for circulation and DO
  - There is a connection for a hose to vacuum solids from the bottom of the tank when necessary (photo #5)
  - The pipes connecting these tanks to the outfall have been plugged
- Circular tank 2
  - Tanks 1&3 flow into tank 2 (photo #6)
  - This tank includes an exterior ring made of silt fence material for solids removal – the water from tanks 1&3 flows into this outer ring; the ring contains filamentous algae (photo #7)
  - The inner part of the tank contains duck weed and greater starwort; greater starwort can be found in other wastewater ponds
  - Water from tank 2 has upward flow from a 55 gallon drum that has been filled with rocks, sand, and silt fence material/screen that then flows to the sediment bags (photo #8)
- Groundwater infiltration
  - Water from Tank 2 flows to two sediment bags on top of a layer of woodchips, where the water infiltrates into the ground (photo #9)
  - When the bags are full, they will be hauled offsite to the Town's sandpit

**Hayley Franz, P.E.**

Permits Engineer  
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**From:** Franz, Hayley  
**Sent:** Tuesday, June 18, 2019 9:52 AM  
**To:** Gaito, Danielle <[Gaito.Danielle@epa.gov](mailto:Gaito.Danielle@epa.gov)>  
**Cc:** Spanos, Stergios <[Stergios.Spanos@des.nh.gov](mailto:Stergios.Spanos@des.nh.gov)>; Neils, David <[David.Neils@des.nh.gov](mailto:David.Neils@des.nh.gov)>  
**Subject:** FW: Powder Mill Hatchery Update

Hi Danielle,

Sterg and I took a ride out to PMFH to see the progress that has been made on the interim measures that Jason described in the email below.

We took a few pictures – see attached.

1. This picture shows the 3 tanks that Jason describes (the tank with the blue tote is Tank 2 and Tanks 1&3 are on either side). You can see the 3" PVC connecting Tanks 1&3 to Tank 2.
2. Tank 3 – they are working on the piping here. They intend to have fresh water flowing into this tank (and Tank 1) to maintain a circular flow and prevent freezing during the winter.
3. 3" PVC connection between Tanks 2&3
4. Tank 2 – the blue tote will be filled with sand that the water will flow through prior to flowing to the dirtbags/woodchips
5. Piping of Tank 2 to the location of woodchips/dirtbags
6. The woodchips have been set up and they have the dirtbags on site, but they have not been set up yet.

I also attached some information on the dirtbags that have are using.

They said that they hope to have the system operating in a couple of weeks. We will take another ride out there in a month or so to see how the system is working.

Thanks,  
Hayley

**Hayley Franz, P.E.**  
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**From:** Smith, Jason <[Jason.Smith@wildlife.nh.gov](mailto:Jason.Smith@wildlife.nh.gov)>  
**Sent:** Friday, May 31, 2019 11:32 AM  
**To:** Franz, Hayley <[Hayley.Franz@des.nh.gov](mailto:Hayley.Franz@des.nh.gov)>; Spanos, Stergios <[Stergios.Spanos@des.nh.gov](mailto:Stergios.Spanos@des.nh.gov)>; Neils, David <[David.Neils@des.nh.gov](mailto:David.Neils@des.nh.gov)>; Gaito, Danielle (<[Gaito.Danielle@epa.gov](mailto:Gaito.Danielle@epa.gov)>  
<[Gaito.Danielle@epa.gov](mailto:Gaito.Danielle@epa.gov)>  
**Subject:** Powder Mill Hatchery Update

Stergios,

Nice chatting with you today. I wanted to provide you this update on recent developments at Powder Mill State Fish Hatchery and more specifically, some of the interim measures proposed in the attached letter to the Town of New Durham.

I have spent some time with staff at the hatchery over the last few weeks putting together our proposed fish waste cleaning water storage/treatment facility. We have taken several circular raceways out of production and have piped them together to accomplish our proposed plan. It has taken a few days of hand digging, chiseling and running pipes but we have made tremendous progress. All that is remaining can be accomplished a day or two next week once DOT delivers several loads of wood chips. I have attached a document ("settling system\_draft") that describes what we proposed and have been working on for your review. Below are some links to literature that explains some of our approach.

<http://www.engineersjournal.ie/2016/07/26/woodchip-bioreactor-biological-nitrogen-removal/>

<https://www.wef.org/globalassets/assets-wef/direct-download-library/public/03---resources/algaedigest2016.pdf>

As far as some of the other interim measures mentioned in the attached letter:

1. landlocked salmon production has been moved to Nashua National Fish Hatchery. We are putting a 5 year MOU in place to maintain that for that duration.
2. Low Phosphorus fish feed specification for competitive bid has been sent to Bureau of Purchase and Property and should be in place for July 1<sup>st</sup>.

Please do not hesitate to contact me if you have additional questions.

***Jason M. Smith***

Chief, Inland Fisheries Division  
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**Did you know? New Hampshire Fish and Game has been conserving New Hampshire's fish, wildlife and their habitats since 1865.**

